

the emergency power source to supply power to the emergency loads.

**§ 112.01-15 Temporary emergency power source.**

A temporary emergency power source is one of limited capacity that carries, for a short time, selected emergency loads while an emergency power source of larger capacity is being started.

**§ 112.01-20 Final emergency power source.**

A final emergency power source is one that functions after the temporary emergency power source is disconnected.

**Subpart 112.05—General**

**§ 112.05-1 Purpose.**

(a) The purpose of this part is to ensure a dependable, independent, and dedicated emergency power source with sufficient capacity to supply those services that are necessary for the safety of the passengers, crew, and other persons in an emergency and those additional loads that may be authorized under paragraph (c) of this section.

(b) No load may be powered from an emergency power source, except:

(1) A load required by this part to be powered from the emergency power source;

(2) A bus-tie to the main switchboard that meets § 112.05-3; and

(3) Emergency loads that may be necessary to maintain or restore the propulsion plant, such as control systems, controllable pitch propellers, hydraulic pumps, control air compressors, and machinery necessary for dead-ship start-up.

(c) Other loads may be authorized by the Commanding Officer, Marine Safe-

ty Center (MSC), to be connected to the emergency source of power to provide an increased level of safety in recognition of a unique vessel mission or configuration. When these loads are authorized, the emergency power source must—

(1) Be sized to supply these loads using a unity (1.0) service factor; or

(2) Be provided with automatic load shedding that removes these loads and operates before the emergency generator trips due to overload. The automatic load shedding circuit breakers must be manually reset.

[CGD 74-125A, 47 FR 15267, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28286, June 4, 1996; 61 FR 36787, July 12, 1996]

**§ 112.05-3 Main-emergency bus-tie.**

Each bus-tie between a main switchboard and an emergency switchboard must:

(a) Disconnect automatically upon loss of potential at the emergency switchboard;

(b) Be arranged to prevent parallel operation of an emergency power source with any other source of electric power, except for interlock systems for momentary transfer of loads; and

(c) If arranged for feedback operation, open automatically upon overload of the emergency power source before the emergency power source is tripped off the line from the overload.

**§ 112.05-5 Emergency power source.**

(a) The emergency power source must meet table 112.05-5(a) and have the capacity to supply all loads that are simultaneously connected to it, except a load on a bus-tie to the main switchboard or non-required loads that are connected in accordance with § 112.05-1(c).

TABLE 112.05-5(A)

Size of vessel and service	Type of emergency power source or lighting	Period of operation and minimum capacity of emergency power
Passenger vessels: Ocean, Great Lakes, or coastwise; or on an international voyage.	Temporary emergency power source; and final emergency power source (automatically connected storage battery or an automatically started generator).	36 hours. <sup>1 2</sup>

TABLE 112.05-5(A)—Continued

Size of vessel and service	Type of emergency power source or lighting	Period of operation and minimum capacity of emergency power
Other than Ocean, Great Lakes, or coastwise and not on an international voyage.	Final emergency power source (automatically connected storage battery or an automatically started generator).	8 hours or twice the time of run, whichever is less. <sup>2</sup>
Cargo vessels; miscellaneous self-propelled vessels; tankships; barges with sleeping accommodations for more than 6 persons; mobile offshore drilling units; and oceanographic vessels: Ocean, Great Lakes, or coastwise and 500 GT or more; on an international voyage and 500 GT or more; or all waters and 1600 GT or more.	Final emergency power source (automatically connected storage battery or an automatically started generator).	18 hours. <sup>1 2</sup>
Ocean, Great Lakes, or coastwise and less than 500 GT; or other than ocean, Great Lakes, or coastwise, 300 GT or more but less than 1600 GT, and not on an international voyage..	Emergency lighting provided by an automatically connected or manually controlled storage battery; automatically or manually started generator; or relay-controlled, battery-operated lanterns. <sup>3 4</sup> .	6 hours or twice the time of run, whichever is less.

<sup>1</sup> A 12-hour power supply may be especially considered for vessels engaged regularly in voyages of short duration.

<sup>2</sup> The capacity for the operation of the steering gear, as required by § 111.93, is for a period of 30 minutes continuous operation.

<sup>3</sup> The emergency lighting requirements of § 112.15-1 (b), (c), (f), and (g) must be met.

<sup>4</sup> Requirements of Subpart 112.39 must be met by the relay-controlled, battery-operated lanterns.

(b) The emergency power source must be independent of the ship's service lighting and powerplant and propulsion plant, except for the compressed air starting means allowed in § 112.50-7(c)(3)(i). A stop control for an emergency generator must be only in the space that has the emergency generator, except a remote mechanical reach rod is permitted for the fuel oil shut-off valve to an independent fuel oil tank located in the space.

(c) The complete emergency installation must function at full rated power when the vessel is upright or inclined to the maximum angle of heel that results from the assumed damage defined in 33 CFR part 155 or in subchapter S of this chapter for the specific vessel type or 22.5 degrees, whichever is greater; when the trim of the ship is 10 degrees, either in the fore or aft direction, or is in any combination of angles within those limits.

(d) The emergency power source, its associated transforming equipment, and the emergency switchboard must be located aft of the collision bulkhead, outside of the machinery casing, and above the uppermost continuous deck. Each compartment containing this equipment must be readily accessible from the open deck and must not contain machinery not associated with, or equipment not in support of, the

normal operation of the emergency power source. Equipment in support of the normal operation of the emergency power source includes, but is not limited to, ventilation fans, CO<sub>2</sub> bottles, space heaters, and internal communication devices, such as sound powered phones.

(e) No compartment that has an emergency power source or its vital components may adjoin a Category A machinery space or those spaces containing the main source of electrical power and its vital components.

(f) Except for a cable for connecting equipment in the engineroom or boilerroom, no cable supplied from the emergency switchboard may penetrate the boundaries of the engineroom, boilerroom, uptakes, or casings of these spaces. These cables must be kept clear of the bulkheads and decks forming these boundaries. No emergency circuit in an engineroom or a boilerroom may supply equipment in any other space.

(g) The emergency switchboard must be as near as practicable to the emergency power source but not in the same space as a battery emergency power source.

(h) If the emergency power source is a generator, the emergency switchboard must be in the same space as the emergency power source.

(i) The prime mover of an emergency generator must be either a diesel engine or a gas turbine.

[CGD 74-125A, 47 FR 15267, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28286, June 4, 1996; 62 FR 23910, May 1, 1997]

### Subpart 112.15—Emergency Loads

#### § 112.15-1 Temporary emergency loads.

On vessels required by § 112.05-5(a) to have a temporary emergency power source, the following emergency lighting and power loads must be arranged so that they can be energized from the temporary emergency power source:

- (a) Navigation lights.
- (b) Enough lights throughout machinery spaces to allow essential operations and observations under emergency conditions and to allow restoration of service.
- (c) Lighting, including low location lighting if installed, for passageways, stairways, and escape trunks in passenger quarters, crew quarters, public spaces, machinery spaces, damage control lockers, emergency equipment lockers, and work spaces sufficient to allow passengers and crew to find their way to open decks and to survival craft, muster stations, and embarkation stations with all watertight doors and fire doors closed.
- (d) Illuminated signs with the word "EXIT" in red letters throughout a passenger vessel so the direction of escape to the open deck is obvious from any portion of the vessel usually accessible to the passengers or crew, except machinery spaces, and except stores and similar spaces where the crew are not normally employed. There must be sufficient signs so that the direction of escape is obvious, with all fire doors in stairway enclosures and main vertical zone bulkheads closed and all watertight doors closed. For the purpose of this paragraph, an individual state-room or other similar small room is not required to have a sign, but the direction of escape must be obvious to a person emerging from the room.
- (e) Illumination to allow safe operation of each power operated watertight door.

(f) At least one light in each space where a person may be maintaining, repairing, or operating equipment, stowing or drawing stores or equipment, or transiting, such as public spaces, work spaces, machinery spaces, workshops, galleys, emergency fire pumprooms, bow thruster rooms, storage areas for paint, rope, and other stores, underdeck passageways in cargo areas, steering gear rooms, windlass rooms, normally accessible duct keels with valve operators, cargo handling rooms, and holds of roll-on/roll-off vessels.

(g) Lighting for survival craft launching, including muster stations, embarkation stations, the survival craft, its launching appliances and the area of the water where it is to be launched.

(h) Electric communication systems that are necessary under temporary emergency conditions and that do not have an independent storage battery source of power.

(i) Each power operated watertight door system.

(j) All shipwide communications systems necessary for the transmittal of information during an emergency.

(k) Each fire door holding and release system.

(l) Supply to motor generator or other conversion equipment if a temporary emergency power source of alternating current is necessary for essential communication systems or emergency equipment.

(m) Each daylight signaling light.

(n) Each smoke detector system.

(o) Each electrically controlled or powered ship's whistle.

(p) Each fire detection system; and gas detection system if installed.

(q) All lighting relative to helicopter operations and landing if installed, unless provided for by another source of power (such as independent batteries separately charged by solar cells).

(r) Each general emergency alarm system required by SOLAS 74.

[CGD 74-125A, 47 FR 15267, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28286, June 4, 1996]

#### § 112.15-5 Final emergency loads.

On vessels required to have a final emergency power source by § 112.05-5(a)